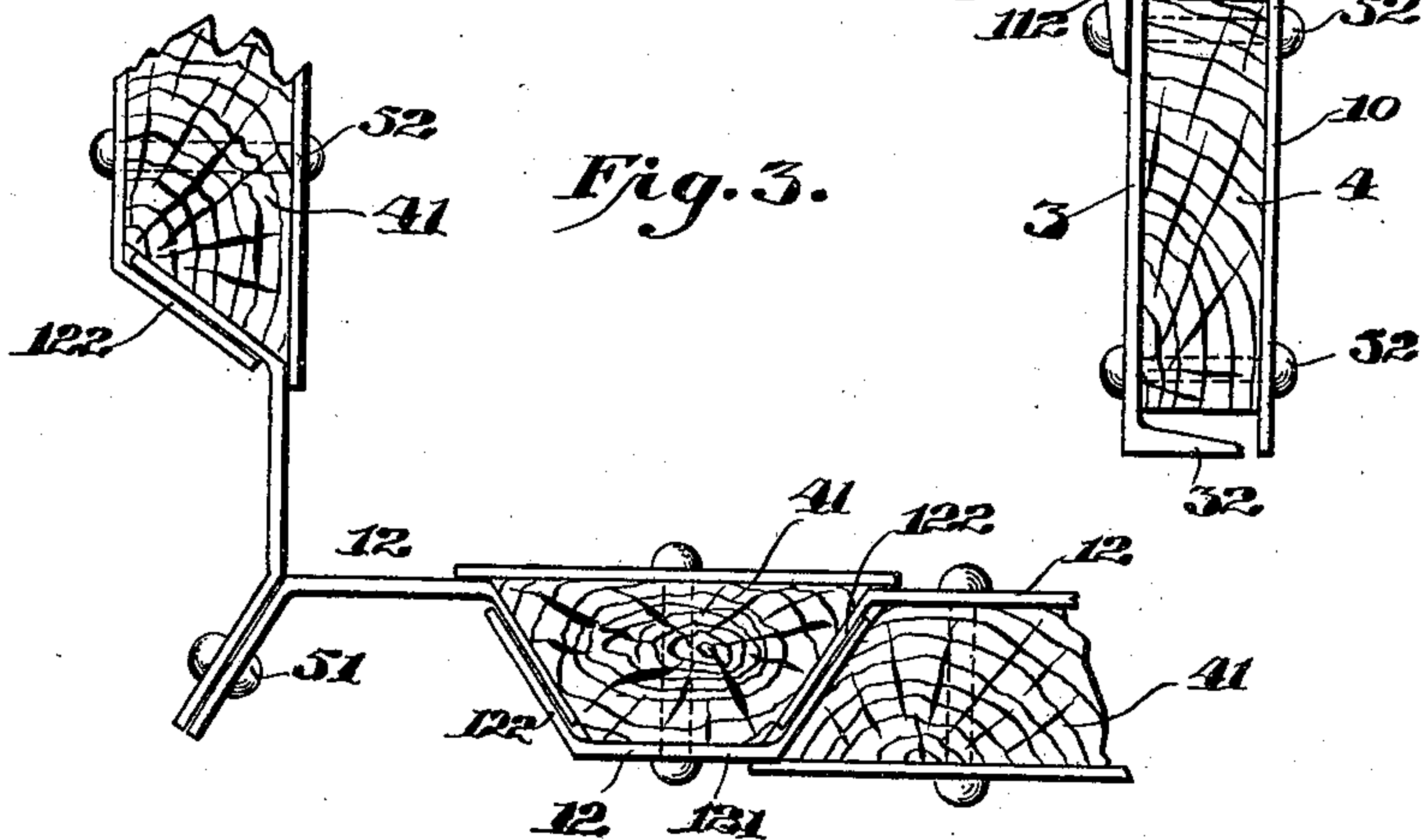
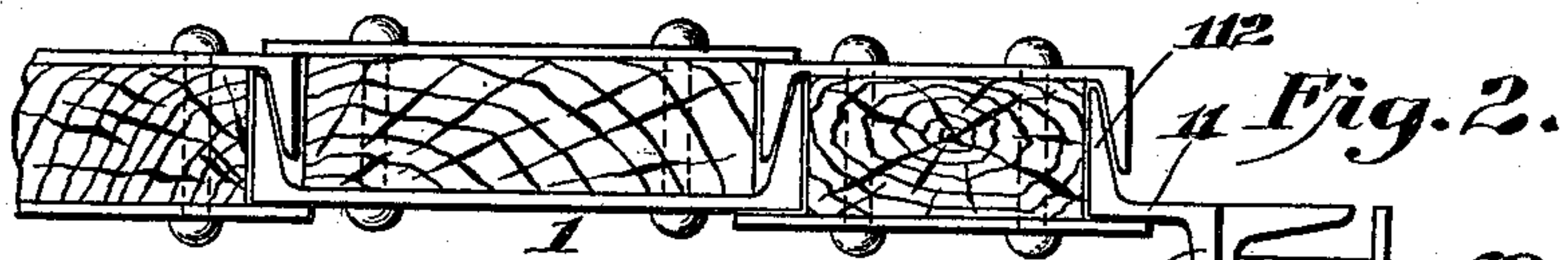
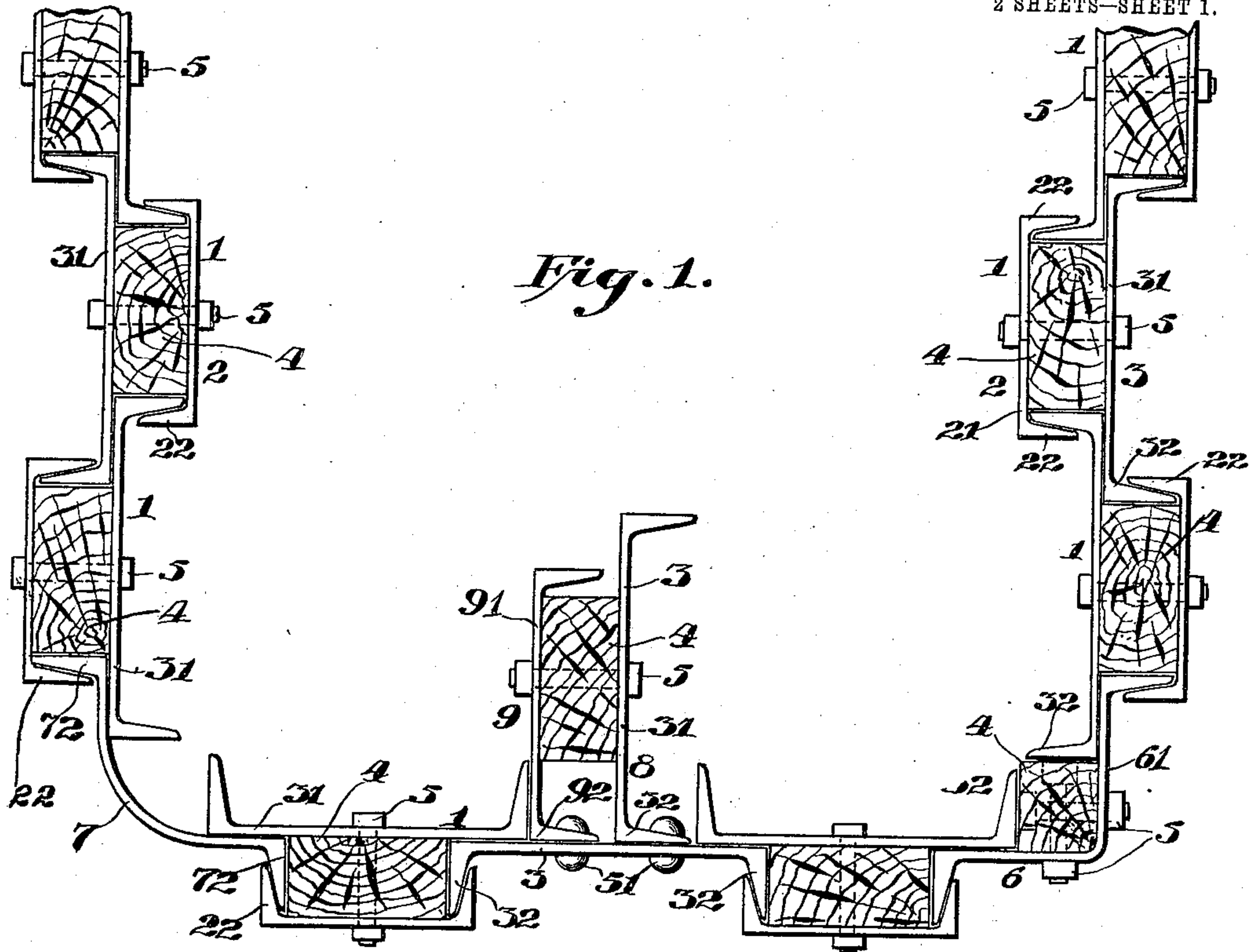


No. 841,197.

PATENTED JAN. 15, 1907.

C. C. TOMKINSON.
SHEET PILING.
APPLICATION FILED NOV. 18, 1905.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 4.

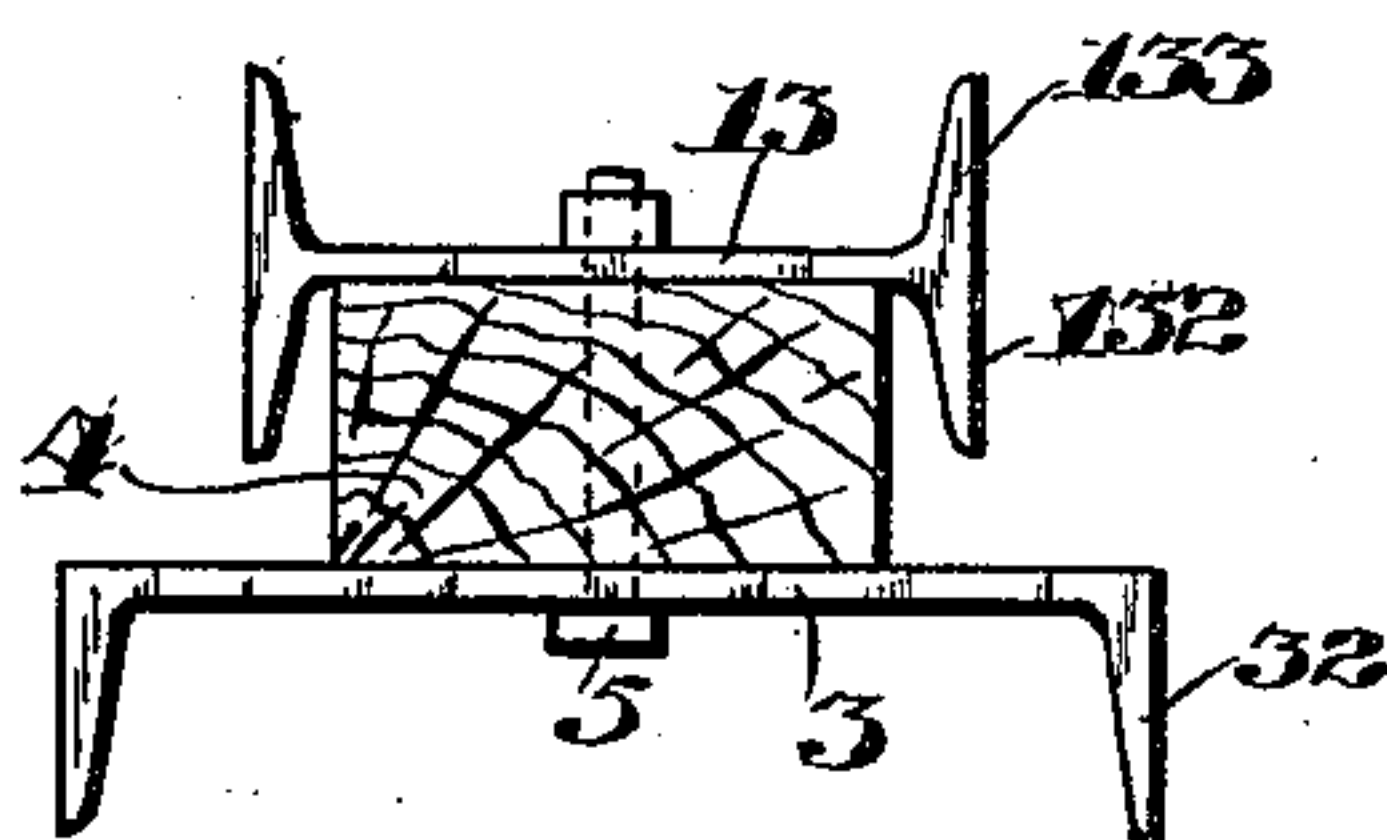


Fig. 5.

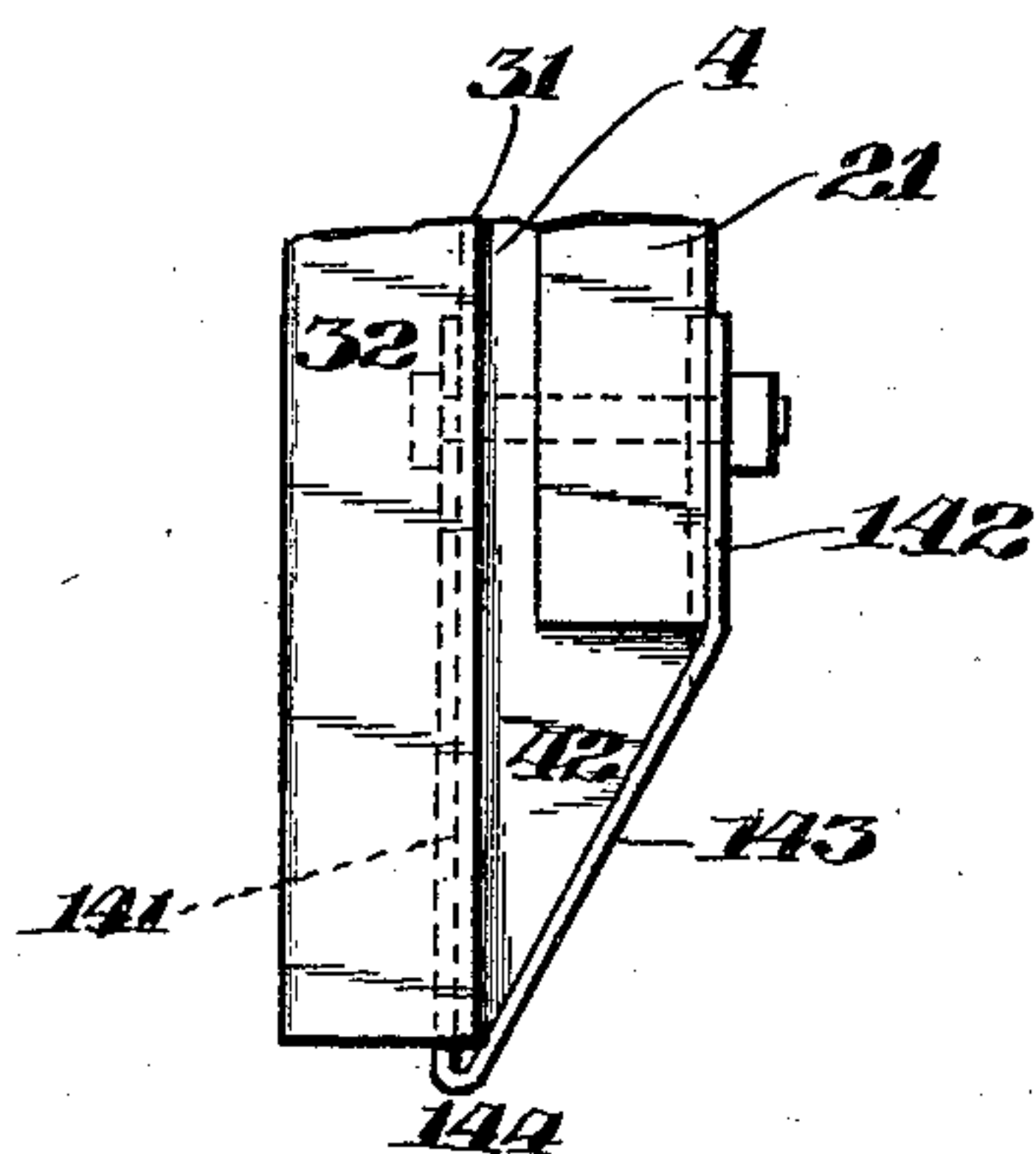
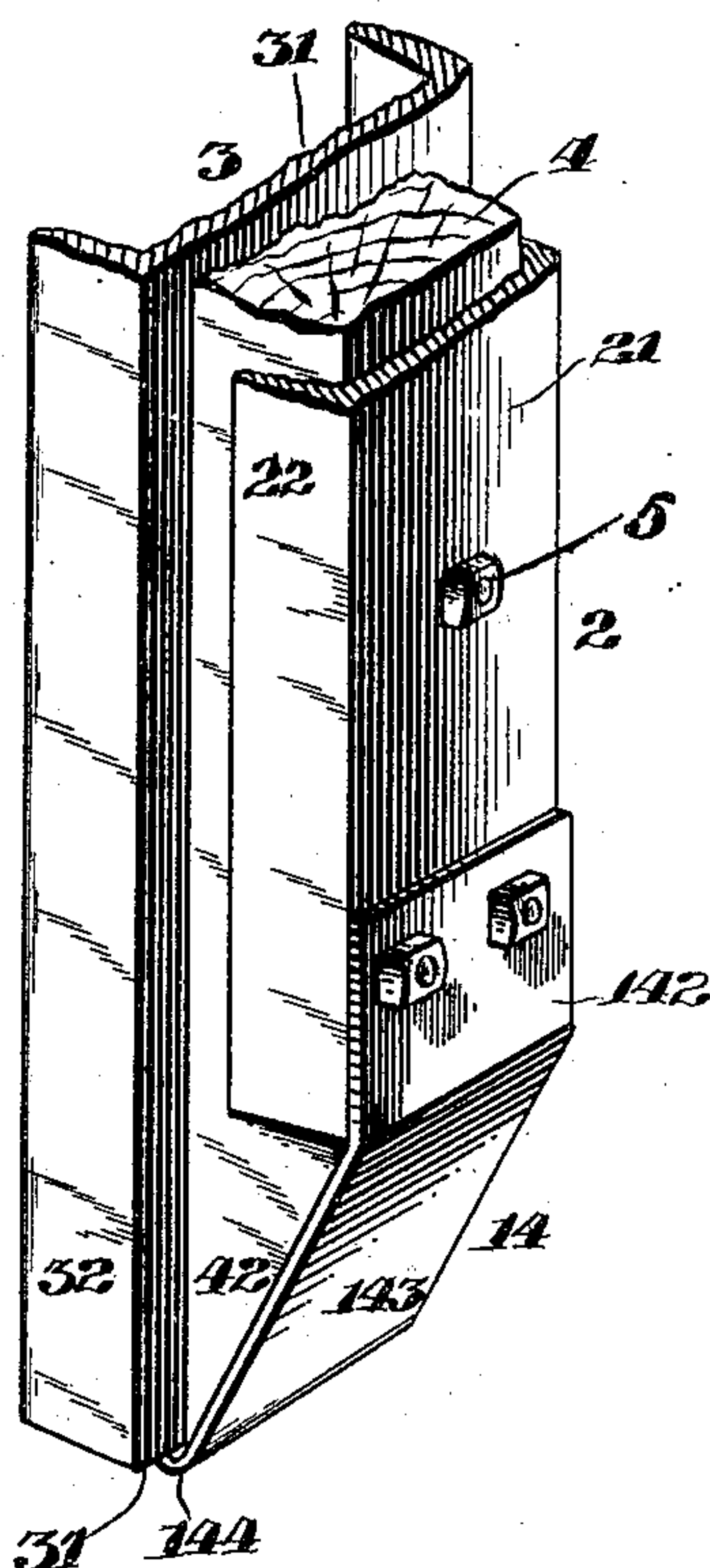


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES C. TOMKINSON, OF PLAINFIELD, NEW JERSEY.

SHEET-PILING.

No. 841,197.

Specification of Letters Patent.

Patented Jan. 15, 1907.

Application filed November 18, 1905. Serial No. 287,939.

To all whom it may concern:

Be it known that I, CHARLES C. TOMKINSON, a citizen of the United States, and a resident of Plainfield, county of Union, and State of New Jersey, have invented certain new and useful Improvements in Sheet-Piling, of which the following is a specification.

My invention relates to piles, and particularly to interlocking piles, such as are used in making sheet-piling for coffer-dam work and the like.

Its object is to provide a pile which shall be cheaply constructed, shall be very rigid and easily driven, and shall be economical, because of its being made of standard sections and of which the selvage when the pile is pulled up shall be practically complete.

Further objects of the invention will appear in the specification and will be pointed out in the claims.

In the drawings, Figure 1 is a top plan view of a portion of a coffer-dam or the like, showing the interlocked piles in their driven position. Figs. 2 and 3 are similar views showing a modified construction of piles. Fig. 4 is a similar view of a single pile of a further modified construction. Fig. 5 is a partial side elevation, and Fig. 6 a perspective view, of the lower portion of a pile, showing a shoe therefor.

Referring to Fig. 1 of the drawings, each of the regular piles 1 consists of two trough-shaped or channel beams 2 and 3, the webs 21 and 31 of which are parallel to each other and the flanges 22 and 32 of which extend in the same direction. Between the webs 21 and 31 of the beams 2 and 3 is placed a wood timber or filler 4, the thickness of which is somewhat greater than the height of the flanges 32 on the beam 3 and the width of which is somewhat less than the inner width of the web 21 of the beam 2, so as to permit the flanges 32 of the larger beam 3 to be driven between the edges of the timber 4 and the flanges 22 of the beam 2, as clearly shown in the drawings. The channel-beams 2 and 3 and the timber filler 4 are securely fastened together by a plurality of bolts 5, preferably placed midway of the width of the parts and in vertical alinement.

The manner of driving these piles is clearly shown in the drawings, in which it will be seen that the piles are successively driven with the webs 31 of the wider beams 3 back

to back and with the flanges 32 of these beams interlocked between the web 31 of the beam of the next pile, the flange 22 of the narrower beam, and the side of the wood filler 4. The swelling of the wood filler 4 presses the edges of the timber firmly against the outer side of the flanges 32 and secures a perfectly water-tight sheet. At the lower right corner of Fig. 1 is shown a pile 6, consisting of a channel-beam 61, the web of which is bent to a right angle at about its middle line, a timber filler 41 being secured by bolts 5 in this angle and so as to swell and bear against the flanges 32 of the adjacent piles on each side of the corner.

At the lower left corner of the drawings is shown a simpler form of corner-pile 7, which consists of a channel-beam the web of which is bent to an approximately quadrantal curve, so that its flanges 72 are, as before, locked between the web 31, the flange 22, and the timber filler 4 of the adjacent piles.

Where it is desired to stiffen the piling or dam by a cross-partition, a pile 8 is used, which consists of a channel-bar 3 and a second channel-bar 9 of a width intermediate between those of the channel-bars 2 and 3, already described. As before, the webs 91 and 31 of the channel-bars are parallel and spaced apart by a timber filler 4, the parts being secured by a bolt 5.

As shown in the drawings, the lateral flanges 92 and 32 of the channel-beams are parallel with each other and are secured by rivets 51 to a third channel-beam 3, the flanges 32 of which are, as before, interlocked with the adjacent piles on each side.

In Fig. 2 of the drawings I have shown a modified form of piling in which a channel-bar 3 is secured to a metal member (shown as a plate 10) by bolts 52, a wooden timber or filler 4 being secured between them, as before. It will be seen that the flanges 32 of the channel-bar 3 interlock with each other and with the ends of the plate 10, as before, and that, as before, the lateral swelling of the timber 4 acts to make the joints water-tight. In this drawing I have shown one of the piles as provided with Z-shaped beam 11, having flanges 112, one of which is bolted to the channel-bar 3 of the pile and the other of which interlocks with the flange on the adjacent pile, as shown.

The form of pile shown in Fig. 3 is similar

to those shown in Fig. 2, except that the channel-bar 3 is replaced by a beam 12, the flanges 122 of which are at an obtuse angle with its web 121. The filler 41 in this case is of a prismatic shape to fit closely when swollen against the flanges 122 of the adjacent beams. I have shown a corner of this dam as formed of two of the beams 12, the adjacent flanges of which are secured together by bolts 51, their remote flanges being interposed between the adjacent flange 121 and the wood filler 41 of the pile on each side of the corner.

The single pile shown in Fig. 4 of the drawings is precisely similar in construction and in use to that shown in Fig. 1, except that the smaller channel-bar 2 is replaced by an I-beam 13; two of the flanges 132 of which of course project in the same direction as the flanges 32 of the channel-bar 3 secured thereto, while the other flanges 133 merely act to strengthen and stiffen the plate.

It will be noted that in all these forms of construction one of the two parallel members is provided with lateral flanges projecting toward the other member, and that this second member has a substantially flat web, the width of which is equal to or greater than the width of the first member, including the flanges thereon, thereby providing for the interlocking of the piles.

To secure the easy driving of the piles of whatever form made, I may provide them with the shoe shown in Figs. 5 and 6, which consists of a plate 14, having two parallel faces 141 and 142 and an intermediate portion 143 bent at an acute angle with the portion 141, the angle 144 inclosing the lower end of the web 31 of the channel-bar 3 and both portions 141 and 142 being bolted to the webs 31 and 21 of the bars 3 and 2, respectively. As shown, the filler 4 may advantageously be beveled at its lower end to fill and stiffen the interlocking portion of the shoe.

It is obvious that changes other than those shown may be made in my device without departing from the spirit of the invention.

It is obvious that the advantages of the invention are the simplicity of construction of the piles, owing to the fact that they are made of standard sections which can be purchased in open market, the ease with which they may be driven in their interlocked position, the water-tight wall which is produced, and the almost perfect selvage which results when the piles are withdrawn by reason of the fact that the taking out of the bolts leave the metal beams or sections and even the timber filler in practically the same condition in which they were before using.

By the word "beam" as used in the specification and claims of this application I of course intend to include any metal section of substantial length which forms one of the

members of the pile—as, for instance, the flat plates shown in Figs. 2 and 3 of the drawings.

In a copending application of even date herewith, filed November 18, 1905, Serial No. 287,938, I have shown and claimed interlocking piles composed of flanged beams spaced apart by means which form with the web of one beam and the flange of the other a recess for the reception of the flange of the adjacent pile. It is clear that I do not herein claim anything claimed in that application.

What I claim is—

1. An interlocking pile for sheet-piling comprising metal beam members having approximately parallel webs secured together and spaced apart from each other, and a longitudinally-extending filler confined between the two members, one of said members being provided with a flange at each of its edges projecting toward the other member, the other of said members having a substantially flat web, the width of which is at least equal to the entire width of said first-named member.

2. Sheet-piling composed of a plurality of piles interlocked together, each of said piles consisting of two metal members of approximately equal length, at least one of which is trough-shaped, said metal members being secured together and spaced apart from each other.

3. Sheet-piling composed of a plurality of piles interlocked together, each of said piles consisting of two metal members of substantial length, at least one of which is trough-shaped, said metal members being secured together and spaced apart from each other, and a wood filler between said members.

4. Sheet-piling comprised of a plurality of piles interlocked together, each of said piles composed of two metal members of substantial length secured together with a wood filler between them, one of said members having flanges embracing said filler, for the purposes specified.

5. Sheet-piling comprised of a plurality of piles interlocked together, each of said piles composed of two metal beams of standard section each having a laterally-extending flange at each side of its web, the webs of said beams being secured together with a wood filler between them, for the purposes specified.

6. An interlocking pile for sheet-piling comprising two metal members of substantial length having parallel web portions, and a wood filler secured between them, one of said members having lateral flanges one at each side of said filler and projecting toward the other member for the purpose specified.

7. An interlocking pile for sheet-piling comprising two metal beams having web portions and laterally-projecting flanges, and a wood filler secured between said webs, the

webs of said beams being of unequal widths and the flanges of said beams projecting in the same direction.

5 8. An interlocking pile for sheet-piling comprising a metal beam, consisting of a web and lateral flanges, a wooden filler of less width than said web having one of its faces placed against said web and between said flanges, and a second metal beam having an
10 approximately straight face placed against the opposite side of said filler, the three members being secured together, for the purposes specified.

15 9. An interlocking pile for sheet-piling composed of two channel-beams of unequal width and a wood filler bolted together, the filler being placed between the flanges of the narrower channel-beam and against the rear face of the wider channel-beam.

20 10. A pile comprising two metal members having parallel faces spaced apart from each other, one of said members being longer than the other at its lower end, in combination with a shoe consisting of a plate bent at an
25 acute angle in which the lower end of the longer member is inserted, said shoe being secured to the face of each of said metal members.

30 11. A pile comprising two metal members having parallel faces spaced apart from each other, one of said members being longer than the other at its lower end, and a wood filler secured between them, in combination with a shoe consisting of a plate bent at an acute

angle in which the lower end of the longer member is inserted, said shoe being secured to the face of each of said metal members.

12. A pile comprising two metal members, one of which is longer than the other at its lower end, said members having parallel
40 faces, and a wood filler secured between them, in combination with a shoe consisting of an approximately flat plate bent at an acute angle and secured to the face of each of said metal members, said wood filler being
45 beveled at its lower end and approximately filling the space between the faces of said shoe.

13. An interlocking pile comprising two longitudinal metal members and a longitudinal timber filler secured together, one of
50 the metal members covering and secured to one face of the filler and the other of said members covering and secured to the opposite face of the filler and having flanges extending over the other longitudinal faces of
55 the filler and having a longitudinal interval between it and the filler and between it and the other metal member for receiving and closely fitting the flange of a neighboring
60 pile.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES C. TOMKINSON.

Witnesses:

J. D. FLACK,

W. G. HAWLEY.